

SEMS DocID

2261205

ORIGINAL
(acc)

SHAFFER EQUIPMENT SITE
MINDEN, WEST VIRGINIA
SITE SAFETY PLAN
SEPTEMBER 9, 1987

ORIGINAL
(Red)

I. GENERAL

THIS PLAN ADDRESSES THE SAFETY PROCEDURES THAT WILL BE FOLLOWED BY ANY PERSONNEL VISITING OR INVOLVED WITH SITE ACTIVITIES AT THE SHAFFER EQUIPMENT SITE IN MINDEN, W.V. THIS SITE SAFETY PLAN DOES NOT SUPERCEDE ANY FEDERAL, OSHA, PADER OR LOCAL REGULATIONS BUT RATHER IS IN ADDITION TO THEM. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN AND A REGULATION, THE MORE STRINGENT OF THE TWO SHALL APPLY. THE SITE SAFETY PLAN IS ALSO WRITTEN IN ACCORDANCE WITH OSHA'S DECEMBER "INTERIM FINAL RULE" FOR HAZARDOUS WASTE SITE ACTIVITIES.

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POLYCHLORINATED BIPHENYLS (PCB'S) CONSTITUTE THE CHEMICAL INVENTORY AT THE SHAFFER SITE. THE CORRESPONDING OSHA-PEL DATA FOR PCB'S IS SHOWN BELOW.

CHEMICAL -----	OSHA-PEL -----
POLYCHLORINATED BIPHENYLS	.5 mg/m3

OSHA-PEL: THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION PERMISSIBLE EXPOSURE LIMIT LEVEL AT WHICH MOST WORKERS WILL NOT SUFFER ADVERSE EFFECTS THROUGH AIRBORNE EXPOSURE TO A CHEMICAL DURING AN 8 HOUR WORKDAY AND A 40 HOUR WORK WEEK.

IV. SPECIAL CONSIDERATIONS

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ORIGINAL
(RE)

HOT AND HUMID WEATHER MUST BE CONSIDERED WHEN PLANNING WORK DAY. A WIDE VARIETY OF HEAT RELATED DISORDERS CAN BE ASSOCIATED WITH THE RESTRICTION OF BODY COOLING, VENTILATION, LIQUID REPLACEMENT AND ELECTROLITE REPLENISHMENT. AN ATTACHED SECTION WILL REVIEW SYMPTOMS AND TREATMENT OF HEAT RELATED DISORDERS.

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ALL CONTRACTOR AND GOVERNMENT PERSONNEL INVOLVED IN ON SITE ACTIVITIES SHALL HAVE A WRITTEN RESPIRATORY PROTECTION PROGRAM AND HAVE MEDICAL CERTIFICATION THAT THEY ARE PHYSICALLY FIT TO WEAR A RESPIRATOR. ALL PERSONNEL WEARING AIR-PURIFYING RESPIRATORS ON THE SITE SHALL PROVIDE CERTIFICATION OF FIT TESTING. ALL RESPIRATORY PROTECTION EQUIPMENT SHALL BE DECONTAMINATED AND MAINTAINED DAILY AT THE END OF EACH WORK DAY AS A MINIMUM.

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ONCE A SPECIFIC WORK AREA IS DESIGNATED, THERE WILL BE THREE (3) FUNCTIONAL ZONES ASSOCIATED WITH IT. THESE ZONES WILL INCLUDE THE EXCLUSION AREA OR "HOT ZONE", CONTAMINATION REDUCTION AREA OR "DECON ZONE" AND THE SUPPORT AREA. THE EXCLUSION AREA WILL BE THE AREA OF GROSS CONTAMINATION OR AREA OF SIGNIFICANT HEALTH HAZARD. THE CONTAMINATION REDUCTION AREA IS THE AREA BETWEEN THE HOT ZONE AND THE SUPPORT AREA DESIGNED TO ELIMINATE THE TRANSFER OF CONTAMINATION OR HAZARD TO OTHER SITE LOCATIONS. THE SUPPORT AREA INCLUDES ALL AREAS WHICH ARE NOT CONTAMINATED OR DO NOT REPRESENT SIGNIFICANT HEALTH HAZARDS TO WORKERS. NO PERSONNEL OR EQUIPMENT CAN ENTER OR EXIT THE EXCLUSION AREA WITHOUT PASSING THROUGH THE CONTAMINATION REDUCTION ZONE. ALL EQUIPMENT WILL BE DECONTAMINATED AT THE END OF EACH WORK DAY TO THE GREATEST EXTENT POSSIBLE.

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ALL SAMPLING, OPENING AND MATERIAL TRANSFER WILL BE PERFORMED IN LEVEL B PROTECTIVE EQUIPMENT UNTIL SUCH TIME THAT THE DRUM CONTENTS AND THEIR ASSOCIATED HAZARDOUS PROPERTIES ARE FULLY KNOWN.

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ALL CONTRACTOR AND GOVERNMENT PERSONNEL WORKING ON SITE WHERE THEY MAY BE EXPOSED TO HAZARDOUS CHEMICALS SHALL PROVE THEY ARE ENROLLED IN A MEDICAL MONITORING PROGRAM.

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B. ALL PERSONNEL MUST PASS THROUGH THE CONTAMINATION REDUCTION ZONE TO ENTER THE EXCLUSION AREA.

C. AN EMERGENCY EYEWASH WILL BE LOCATED ON THE HOT ZONE SIDE OF THE CONTAMINATION REDUCTION ZONE.

D. WHERE PRACTICAL, ALL TOOLS SHALL BE SPARK PROOF, EXPLOSION RESISTANT AND /OR BONDED OR GROUNDED

E. FIRE EXTINGUISHERS WILL BE ONSITE FOR EQUIPMENT AND SITE RELATED FIRES DURING ALL ACTIVITY PERIODS.

F. A FIRST AID KIT WILL BE PRESENT AT EACH WORK AREA AND WILL BE MADE VISIBLE TO ALL SITE PERSONNEL.

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DUE TO THE TIME OF YEAR, A HEAT STRESS MONITORING PROGRAM MAY BE NEEDED DURING WORKING HOURS. PERSONNEL WOULD BE SUBJECT TO THE FOLLOWING MONITORING PROGRAM:

FOR MONITORING THE BODY'S RECUPERATIVE ABILITY TO EXCESS HEAT, ONE OR MORE OF THE FOLLOWING TECHNIQUES WILL BE USED AS A SCREENING MECHANISM. MONITORING OF PERSONNEL WEARING IMPERVIOUS CLOTHING SHOULD COMMENCE WHEN THE AMBIENT TEMPERATURES EXCEED 85 DEG.F, WORKERS SHOULD BE MONITORED FOR HEAT STRESS AFTER EVERY WORK PERIOD.

A. HEART RATE (HR) WILL BE MEASURED BY THE RADIAL PULSE FOR 30 SECONDS AS EARLY AS POSSIBLE IN THE RESTING PERIOD. THE HR AT THE BEGINNING OF THE REST PERIOD SHOULD NOT EXCEED 110 BEATS PER MINUTE. IF THE HR IS HIGHER, THE NEXT WORK PERIOD SHOULD BE SHORTENED BY 10 MINUTES (OR 33%), WHILE THE LENGTH OF THE REST PERIOD SHOULD STAY THE SAME. HOWEVER, IF THE ORAL TEMPERATURE EXCEEDS 99.7 DEG.F AT THE BEGINNING OF THE NEXT PERIOD, THE FOLLOWING WORK CYCLE SHOULD BE FURTHER SHORTENED BY 33%. ORAL TEMPERATURE SHOULD BE MEASURED AGAIN AT THE END OF THE REST PERIOD TO MAKE SURE THAT IT HAS DROPPED BELOW 99 DEG.F.

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XI. IMPORTANT PHONE NUMBERS

	LOCATION	PHONE #
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POLICE	100 KELLY AVE. (OFF MAIN) OAK HILL, WV	465-0596
AMBULANCE	OFF 4 LANES BY NEW SHOPPING CENTER OAK HILL, WV	465-8700
HOSPITAL	430 MAIN ST. (TAKE RIGHT ^{LEFT} <i>9C.</i>) AT TOP OF MINDEN ROAD ONTO MAIN) .8mi from OAK HILL, WV	465-0551

XII. ADDITIONAL EMERGENCY PHONE CONTACTS - SEE ATTACHED LIST

PREPARED BY: [REDACTED]
REVIEWED BY:
APPROVED BY:

DATE: 7/14/87
DATE:
DATE:

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____	DEPT _____	DATE _____	APPROVED BY
MATH CHECK BY _____	DEPT _____	DATE _____	
METHOD REV. BY _____	DEPT _____	DATE _____	

Company	Date
TAT w/stop	9/14/87
EPA	9/14/87
OHM	9-14-87
OHM	9-14-87
OHM	9-14-87
OHM	9-14-87
OHM	9-14-87
OHM	9-14-87
OHM	9/14/87
TAT	9/14/87
ERT/TAT	9/14/87
EPA	09/14/87
OHM	9/15/87
Westing TAT	9/21/87
OHM	10/9/87
OHM	10/9/87
OHM	10/13/87
OHM	10/13/87
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OHM	10-29-87
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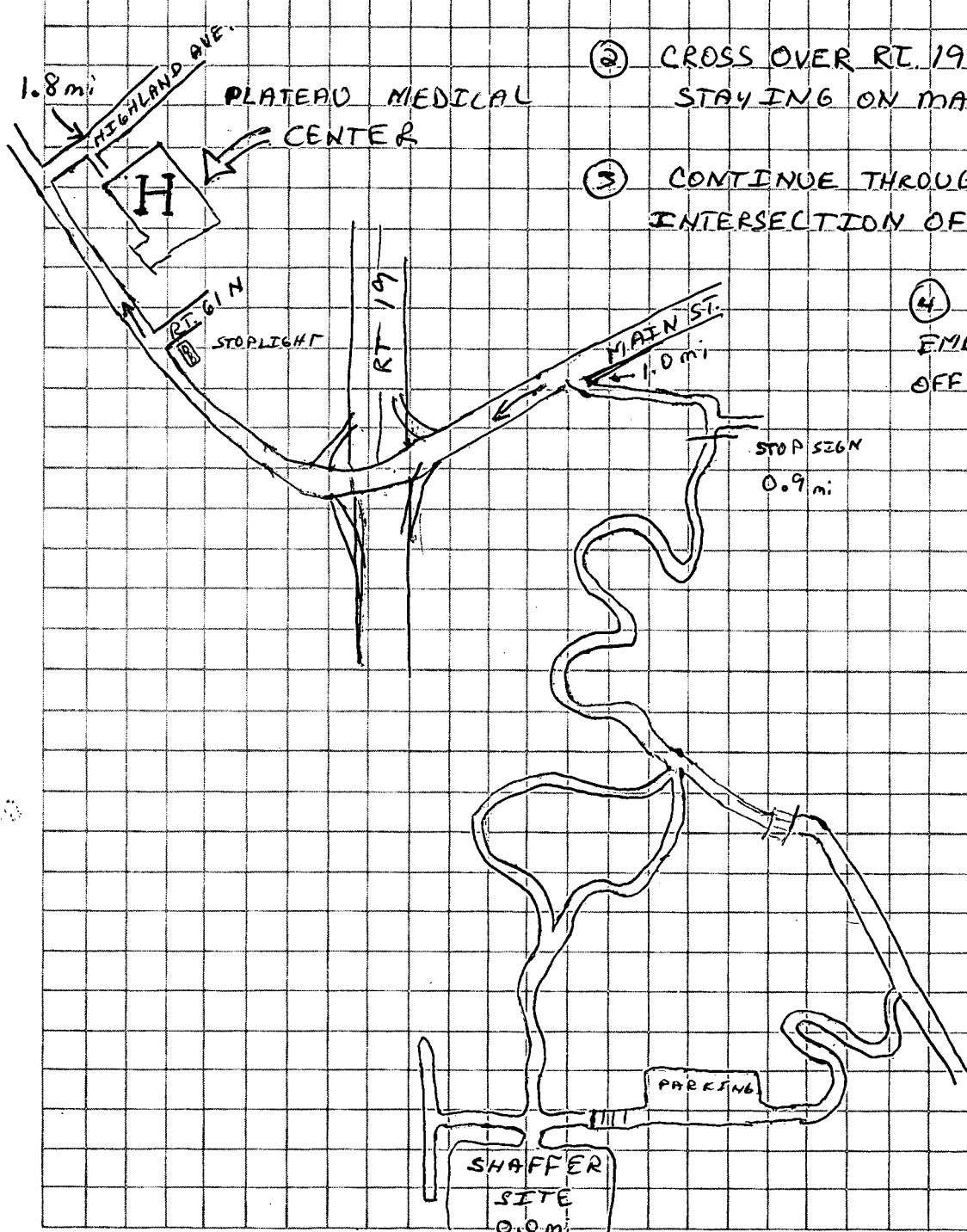
MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	
DEPT _____	DATE _____

HOSPITAL DIRECTIONS

- ① TAKE LEFT ON MAIN ST
AT TOP OF OLD MINDEN ROAD.
- ② CROSS OVER RT. 19 TO STOP LIGHT
STAYING ON MAIN ST.
- ③ CONTINUE THROUGH LIGHT TO
INTERSECTION OF HIGHLAND & MAIN.
- ④ ENTRANCE TO
EMERGENCY WARD
OFF HIGHLAND.
1.8 MILES FROM
SITE.



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ORIGINAL
(Red)

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DATE:
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ORIGINAL
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WESTON SPER DIVISION
HAZARDOUS WASTE SITE INVESTIGATION AND EMERGENCY RESPONSE
HEALTH AND SAFETY PLAN

Assignor: PHIL YOUNIS REGION III
Date of Inspection: 9/9/87 Time: 0800 TDD No. _____
Original Safety Plan: Yes 1 No ✓ Modification No. _____

Site Name: SCHAFER EQUIPMENT COMPANY (MINDEN W.V.)

Site Address: Street No. _____
City MINDEN
County _____
State WEST VIRGINIA Zip Code _____

Site Contact: _____ Phone _____

Directions to Site: SOUTH 79 TO ~~ROUTE 19~~ TAKE ROUTE 19 S. 116 MAIN ST.
EXIT OAK HILL. TAKE RIGHT ONTO N 16 AT OFFRAMP. TAKE 1ST RIGHT BY GAS STATION
ONTO OLD MINDEN RD. TAKE HARD RIGHT TURN & PROCEED .5 MI. DOWN HILL TO DIRT RD. SWAY
INTERSECTION. TAKE RT. ON DIRT RD. FOLLOW THROUGH ~~RESIDENTIAL~~ RESIDENTIAL AREA TO SITE.

Map Attached: Yes No
If Remote Location: Latitude _____ Longitude _____

SITE HISTORY: SITE OPENED IN 1985. CLEANUP OF PCB CONTAMINATED
SOIL WHICH ORIGINATED FROM SPILLAGE OF TRANSFORMERS STORED
ON SITE.

INCIDENT DESCRIPTION

TYPE: A) Spill ✓ Air Release _____ Fire _____ HW Site _____ Other _____
B) Assessment _____ Sampling _____ Emergency Response _____
Clean-up/Removal ✓ Other (specify) _____
C) Urban/Residential ✓ Commercial _____ Industrial _____
Rural ✓ Remote _____

PHYSICAL DESCRIPTION

Size of Site: _____ Terrain: IN HOLLOW Weather P.C. - SHOWERS - 75-85°

Containers Involved in the Release or Incident NA

Drums _____ No. _____ Tanks _____ No. _____

Truck _____ License No. _____ Tanker _____ Box _____

Railroad Car _____ Tank No. _____ Box No. _____

Spill ✓ Source PCB OIL. Approximate Volume 25000 y³

Other _____

ORIGINAL
(Red)

MATERIALS INVOLVED:

Name	TLV	IDLH	Overexposure	Symptoms
------	-----	------	--------------	----------

POLY CHLORINATED BIPHENYLS

HEAVY METALS

SPECIAL HAZARDS: INGESTION, INHALATION, SKIN CONTACT, HEAT
STRESS

ANTICIPATED LEVEL OF PROTECTION (circle one): A B C D

WHY: IDENTIFIED SPECIAL HAZARDS

FIRST AID INSTRUCTIONS FOR KNOWN CONTAMINANTS:

PERSONNEL EXPOSURE HAZARDS: (H=high, M=moderate, L=low, U=unknown)

Inhalation ☒ Skin Contact ☒ Ingestion ☒ Radioactive ☐
Biological ☐ Fire ☐ Explosion ☐ Unknown ☐

PERSONNEL PHYSICAL SAFETY HAZARDS:

Heat ☒ Cold ☐ Noise ☒ Underground Utilities ☐
Overhead Utilities ☒ Heavy Equipment ☒ Slip, Trip, Fall ☒
Sharp Objects ☐ Pressurized Airlines ☐ Cylinders ☐
Ladders ☐ Scaffolds ☐ Unguarded Openings-Wall, Floor ☐
Liquids in Open Containers, Ponds, Lagoons ☐

ORIGINAL
(Red)

ACTIONS TAKEN ON SITE:

Was Entry Made: YES NO ✓

Equipment Used: (circle) LEVEL A B C D WHY:

SCBA APR Model Cart./Can. Type

Tyvek Poly Tyvek Saran Tyvek Acid Suit

Rain Gear Cotton Coveralls

Gloves: Inner Butyl Nitrile Viton Other

Foot Gear: Safety Boots Outer Boots Booties Other

Description of Decontamination Used:

AIR MONITORING *NA*

Performed by:

Instrument Readings: Radiation Meter CGI

OVA HNU Detector Tube

Other

Wind: Speed Direction Temp. Rel. Hum. B.P.

Summarize Air Monitoring Data

SAMPLING *NA*

Performed by:

Sampling Plan (Y or N) If yes attach copy to safety plan

No. of Samples: Solid Liquid Gas Other

Laboratory:

Has Lab Been Notified of Potential Hazard Level? Yes No

Analyses:

Sampling Comments:

ORIGINAL
(Red)

DOCUMENTATION

Performed by: [REDACTED]

Type: Photo ☒

Log Book ☒

Recorder _____

Video _____

PUBLIC IMPACT

Distance to Nearest: Residence 120' School _____ Hospital _____

Public Building _____ Other _____

Evacuation: Yes _____ No ☒ Number _____ By Whom: _____

ENVIRONMENTAL IMPACT:

Nearest Waterway: SMALL STREAM (3' WIDE) Distance: 20'

Condition

Observed

Potential

None

Surface Water Contamination
Ground Water Contamination
Drinking Water Contamination
Air Contamination
Soil Contamination
Stressed Vegetation
Dead Fish, Other Animals

_____	<input checked="" type="checkbox"/>	_____
_____	<input checked="" type="checkbox"/>	_____
_____	<input checked="" type="checkbox"/>	_____
_____	<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
_____	<input checked="" type="checkbox"/>	_____

PERSONNEL INVOLVED: (NAME, AGENCY, PHONE, ON or OFF SITE)

SITE MANAGER: PHIL YOUNIS

SITE SAFETY COORDINATOR: [REDACTED]

Have Read & Understood The
Site Safety Plan (check)

EPA

Phil Younis

TAT

[REDACTED]

9/2/87
9/9/87

STATE

OTHER

Gene Leiber *Tommy* *Steven E. Keen*
OHM 9/9/87 *Nicklas* *Paul Day*
9-9-87 OHM
9-9-87 OHM

9/9/87
9/9/87

ORIGINAL
(Red)

EMERGENCY INFORMATION

EMERGENCY PHONE NUMBERS:

Fire
Police
Ambulance
Hospital

Nearest Phone

<u>Location</u>	<u>Phone</u>	<u>Notified (Y/N)</u>
OAK HILL	465-0596	
OAK HILL	465-0596	
OAK HILL	465-8700	
OAK HILL	465-0551	

DIRECTIONS TO HOSPITAL:
(ATTACH MAP)

MAIN ST. OAK HILL

ADDITIONAL EMERGENCY PHONE CONTACTS:

CHEMTREC	(800) 424-9300
TSCA HOTLINE	(800) 424-9065, (202) 554-1404
CDC	(404) 452-4100 (Day), (404) 329-2888 (Night)
BUREAU OF ALCOHOL, TOBACCO & FIREARMS	(800) 424-9555, (202) 566-7777
NATIONAL RESPONSE CENTER	(800) 424-8802
WESTON MEDICAL EMERGENCY SERVICE	
WESTON 24 HOUR HOTLINE	
PESTICIDE INFORMATION SERVICE	(800) 845-7633
EPA ERT EMERGENCY	(201) 321-6660
RCRA HOTLINE	(800) 424-9346
BUR. OF EXPLOSIVES, A.A. RAILWAYS	(202) 835-9500

Prepared by: _____ Date: 9/7/87
Reviewed by: _____ Date: _____
Approved by: _____ Date: _____

SPER HSO Reviewed by: _____ Date: _____
Followup Required: Yes _____ No _____
Followup Performed: Date: _____ With: _____
Comments: _____

~~SHAFER PCB Site~~
~~NEW CASTLE ABANDONED CONTAINER SITE~~

SITE/SAFETY PROTOCOL

GENERAL

This protocol addresses the safety procedures that will be followed by any and all personnel visiting the site or involved in the CERCLA removal activity at the ~~SHAFER PCB Site~~ Site. All personnel entering the site shall read and sign this safety plan. The protocol will remain in effect until the OSC certifies that the activity is terminated. It does not supercede any Federal OSHA or State or local regulations but is in addition to them. In the event of a conflict between this protocol and a regulation, the more stringent of the two will be in force. The protocol is in accordance with and refers to the terminology used in the Office of Emergency and Remedial Response (OERR), Interim Standard Operating Safety Procedures.

NOTE: Since data available at the present time does not allow a complete characterization of the containerized waste on the site, levels of protection for personnel will be set in accordance with the hazard of the job function and location on-site as indicated on the attached diagram. LEVELS OF PROTECTION AND SITE SAFETY PROTOCOL WILL BE UPDATED AS SITE CHARACTERIZATION PROGRESSES.

Respiratory Protection Program

All contractor and governmental personnel involved in on-site activities shall have a written respiratory protection program and prove that they are physically fit to wear a respirator. All personnel wearing air-purifying respirators on-site are required to be fit tested, while those wearing pressure-demand self-containing breathing apparatus or air-line apparatus, must be properly trained and experienced in their use. All respiratory protection equipment is to be properly decontaminated at the end of each workday.

Persons having beards or facial hair must not wear a respirator.

Training and Medical Monitoring Program

Personnel will have either formal training or on-the-job training for those tasks they are assigned to perform on the active site. All unfamiliar activities will be rehearsed beforehand.

All contractor and governmental personnel who are exposed to hazardous levels of chemicals shall prove that they are enrolled in a medical monitoring program.

Site Safety Protocol

Page 2

General Safety Rules and Equipment

- a. There will be no eating, drinking or smoking in the Exclusion Area or hot side of the Contamination Reduction Area.
- b. All personnel must pass through the Contamination Reduction Area to enter the Exclusion Area.
- c. An emergency eye wash will be on the hot side of the Contamination Reduction Area.
- d. As a minimum, an emergency deluge shower/spray can is to be located on the clean side of the Contamination Reduction Area.
- e. At the end of the work, all personnel working in the Exclusion Area shall take a hygienic shower.
- f. All supplied breathing air shall be certified as Grade D or better.
- g. Where practical, all tools/equipment will be spark proof, explosion resistant and/or bonded and grounded.
- h. Fire extinguishers will be on-site for equipment or personnel fires only.
- i. A first-aid kit will be on-scene at all times during operational hours. An oxygen inhalator respirator will be available. The location of these items on-site will be posted.
- j. Persons having beards or facial hair must not wear respirators.
- k. No work will be performed in the exclusion area during hours of darkness as determined by the site safety officer.

Morning Safety Meeting

A morning safety meeting will be conducted each day for all site personnel who sign a daily attendance sheet. The safety procedures, evacuation procedures, and escape procedures, as well as the day's planned operations, should be discussed.

Site Safety Protocol

Page 3

CONTROL AT THE SITE

Access to the site will be restricted by a site security officer and banner guard installed during the immediate removal phase at this site and exit from the site shall be through the gate in the Contamination Reduction Area except in a life-threatening emergency.

All persons entering the site shall sign in and out at the OSC command post or with the site security officer.

DESIGNATION OF WORK AREAS AT THE SITE

The entire site will be divided into three areas: (1) Exclusion Area which known to be or have a potential for becoming contaminated; (2) the Contamination Reduction Area where decontamination of personnel and equipment exiting the Exclusion Area is performed; (3) the Support Area which is not contaminated.

The Exclusion Area (EA)

At the Site, the Exclusion Area shall initially include all areas inside the banner guard.

The Contamination Reduction Area (CRA)

At the *SHAFER PCB/Equipment* Site, the Contamination Reduction Area will be located immediately outside the Exclusion area and will be delineated by roped off area.

The Support Area (SA)

At the Site, the Support Area will be the area outside the Exclusion Area and Contamination Area.

Changes in Designation of Work Areas

As work progresses on-site, the OSC may determine that an area previously designated an EA is no longer classified in that manner. It is not intended, however, to change the designation of the CRA since this may involve the movement of the decontamination facilities and added expense.

SAFETY PROCEDURES AND LEVELS OF PROTECTION

Exclusion Area

1. All personnel shall enter and exit the Exclusion Area through the Contamination Reduction Area.
2. Emergency escape routes from the Exclusion Area will be established and reviewed as appropriate at each morning safety meeting.

Site Safety Protocol

Page 4

SAFETY PROCEDURES AND LEVELS OF PROTECTION (continued)

Exclusion Area

3. All personnel in the Exclusion Area shall use the protective equipment designated for their job function but in no case shall less than LEVEL C be used.
4. Personnel performing the following job functions in the Exclusion Area will utilize the designated level of protection equipment.

Contamination Reduction Area

1. Personnel and equipment decontamination will be performed in Level C.
2. All personnel entering the CRA will utilize a minimum of Level C protection.
3. All personnel entering the CRA must decontaminate which will be performed in Level C.
4. All equipment entering the CRA must be decontaminated prior to leaving the CRA.

Support Area

1. No contaminated equipment or personnel may enter the Support Area.
2. Except in the case of a release of a Toxic vapor, Level D will be appropriate for all personnel in the Support Area.

Prime Contractor

- a. Barrel handling, including opening, sampling, pumping, moving, emptying, or any direct or indirect disturbance of a full-barrel will be performed in Level B. This applies to anyone involved, including equipment operators.
- b. Excavation operations will be performed in Level C.
- c. Soil removal operations will be performed in Level C.
- d. Maintenance of filter fencing will be done in Level C unless photoionization detector readings are below 5 ppm in which case Level B will be used.

Site Safety Protocol

Page 5

DECONTAMINATION PROTOCOL

All equipment and personnel entering the site must be thoroughly decontaminated prior to leaving the site. Since there are various protocol and equipment available for this purpose, the OSC will determine if the proposed decontamination techniques are applicable. Such determinations will be made on a day-to-day basis as on-site operations dictate.

ON-SITE AIR MONITORING

Additional air sampling will be dependent on the data obtained from onsite. Photoionization Detector and/or Organic Vapor Analyzer. Additional air monitoring will be performed as conditions warrant. This monitoring will be designed and performed by the OSC or his technical staff.

Site Safety Protocol

Page 6

EMERGENCY PROCEDURES

In the event of a medical or other emergency, the OSC or his designee will notify the appropriate authority. The following list of phone numbers will be posted prominently at each telephone on-site:

1. Fire 911
2. Ambulance 911
3. Police 911
4. Federal Government 215-597-9898
5. State Government _____
6. County/City Government _____
7. EPA Environmental Response Team 215-597-9898
8. Hospitals _____

SITE SAFETY PROTOCOL
Attachment A

WEATHER AND HEAT STRESS

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency and personal injury. Of particular importance is heat stress, resulting when protective clothing decreases natural body ventilation. The following recommendations will help reduce heat stress:

1. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost due to sweating.
2. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
3. In extremely hot weather, conduct nonemergency response operations in the early morning or evening.
4. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc., which can decrease physical efficiency and increase the probability of accidents.
5. In hot weather, rotate shifts of workers wearing impervious clothing.

Heat Stress Monitoring

Due to the time of year, a Heat Stress Monitoring Program may be needed during working hours. Personnel would be subject to the following monitoring program:

For monitoring the body's recuperative ability to excess heat, one or more of the following techniques will be used as a screening mechanism. Monitoring of personnel wearing impervious clothing should commence when the ambient temperatures increase or as slow recovery rates are indicated. When temperatures exceed 85°F, workers should be monitored for heat stress after every work period.

SITE SAFETY PROTOCOL
Attachment A

Page 2

HEAT STRESS MONITORING (continued)

1. Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stay the same. However, if the OT exceeds 99.7°F at the beginning of the next period, the following work cycle should be further shortened by 33%. OT should be measured again at the end of the rest period to make sure that it has dropped below 99°F.
2. Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing work should be similar at both weighings; preferably the worker should be nude. The scale should be accurate to plus or minus 1/4 lb. BWL should be instructed to increase his daily intake of fluids by the weight lost. Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in heat as well.
3. Blood pressure before and after each work period will be monitored.
4. Good hygienic standards must be maintained by frequent changes of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

Effects of Heat Stress

If the body's physiological progresses fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety and decreased concentration, dexterity or movement) to fatal. Standard reference books should be consulted for specific treatment.

Heat-related problems are:

- Heat Rash: Caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.
- Heat Cramps: Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: Muscle spasm and pain in the extremities and abdomen.

SITE SAFETY PROTOCOL
Attachment A

Page 3

EFFECTF OF HEAT STRESS (continued)

- Heat Exhaustion: Caused by increased stress or various organs to meet increased demands to cool the body. Signs: Shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
- Heat Stroke: The most severe form of heat stress. Body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are: Red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse, coma.

Any personnel that feels he is displaying any effects of heat stress that may not be known to the medical monitoring personnel, will report these immediately.

Name	Organization	Date
[REDACTED]	Wesley TAT	11/17/84
[REDACTED]	O.H. M.	11/17/86
[REDACTED]	OH materials	11/17/86
[REDACTED]	OH materials	11/17/86
[REDACTED]	OH Materials	11/17/86
[REDACTED]	EDP	11/17/86
[REDACTED]	OHM	11/17/86
[REDACTED]	OHM	11/17/86

SITE SAFETY PROTOCOL
SHAFFER EQUIPMENT COMPANY
CERCLA IMMEDIATE REMOVAL PROJECT
U.S. EPA REGION III

GENERAL

THIS PROTOCOL ADDRESSES THE SAFETY PROCEDURES THAT WILL BE FOLLOWED BY ANY AND ALL PERSONNEL VISITING THE SITE OR INVOLVED IN THE CERCLA REMOVAL ACTIVITY AT THE SHAFFER EQUIPMENT SITE. ALL PERSONNEL ENTERING THE SITE SHALL READ AND SIGN THIS SAFETY PLAN. THE PROTOCOL WILL REMAIN IN EFFECT UNTIL THE OSC CERTIFIES THAT THE ACTIVITY IS TERMINATED. IT DOES NOT SUPERSEDE ANY FEDERAL, OSHA, STATE OR LOCAL REGULATIONS BUT IS IN ADDITION TO THEM. IN THE EVENT OF A CONFLICT BETWEEN THIS PROTOCOL AND A REGULATION, THE MORE STRINGENT OF THE TWO WILL BE IN FORCE. THE PROTOCOL IS IN ACCORDANCE WITH AND REFERS TO THE TERMINOLOGY USED IN THE OFFICE OF EMERGENCY AND REMEDIAL RESPONSE (OERR), STANDARD OPERATING SAFETY PROCEDURES (ATTACHED).

RESPIRATORY PROTECTION PROGRAM

RESPIRATORY PROTECTION PROGRAM

ALL CONTRACTOR AND GOVERNMENTAL PERSONNEL INVOLVED IN ON-SITE ACTIVITIES SHALL HAVE A WRITTEN RESPIRATORY PROTECTION PROGRAM AND PROVE THAT THEY ARE PHYSICALLY FIT TO WEAR A RESPIRATOR. ALL PERSONNEL WEARING AIR-PURIFYING RESPIRATORS ON-SITE ARE REQUIRED TO BE FIT TESTED, WHILE THOSE WEARING PRESSURE-DEMAND SELF-CONTAINED BREATHING APPARATUS OR AIR-LINE APPARATUS, MUST BE PROPERLY TRAINED AND EXPERIENCED IN THEIR USE. ALL RESPIRATORY PROTECTION EQUIPMENT IS TO BE PROPERLY DECONTAMINATED AT THE END OF EACH WORKDAY.

PERSONS HAVING BEARDS OR FACIAL HAIR MUST NOT WEAR A RESPIRATOR.

TRAINING AND MEDICAL MONITORING PROGRAM

PERSONNEL WILL HAVE EITHER FORMAL TRAINING OR ON-THE-JOB TRAINING FOR THOSE TASKS THEY ARE ASSIGNED TO PERFORM ON THE ACTIVE SITE. ALL UNFAMILIAR ACTIVITIES WILL BE REHEARSED BEFOREHAND.

ALL CONTRACTOR AND GOVERNMENTAL PERSONNEL WHO ARE EXPOSED TO HAZARDOUS LEVELS OF CHEMICALS SHALL PROVE THAT THEY ARE ENROLLED IN A MEDICAL MONITORING PROGRAM.

GENERAL SAFETY RULES AND EQUIPMENT

- A. THERE WILL BE NO EATING, DRINKING, OR SMOKING IN THE EXCLUSION AREA OR HOT SIDE OF THE CONTAMINATION REDUCTION AREA.
- B. ALL PERSONNEL MUST PASS THROUGH THE CONTAMINATION REDUCTION

1

SITE SAFETY PROTOCOL
PAGE 2

AREA TO ENTER THE EXCLUSION AREA.

- C. AN EMERGENCY EYE WASH WILL BE ON THE HOT SIDE OF THE CONTAMINATION REDUCTION AREA.
- D. AS A MINIMUM, AN EMERGENCY DELUGE SHOWER/SPRAY IS TO BE LOCATED ON THE CLEAN SIDE OF THE CONTAMINATION REDUCTION AREA.
- E. AT THE END OF THE WORK, ALL PERSONNEL WORKING IN THE EXCLUSION AREA SHALL TAKE A HYGENIC SHOWER.
- F. ALL SUPPLIED BREATHING AIR SHALL BE CERTIFIED AS GRADE D OR BETTER.
- G. WHERE PRACTICAL, ALL TOOLS/EQUIPMENT WILL BE SPARK PROOF, EXPLOSION RESISTANT AND/OR BONDED AND GROUNDED.
- H. FIRE EXTINGUISHERS WILL BE ON-SITE FOR EQUIPMENT OR PERSONNEL FIRES; AT THE BOILER AREA, METHANOL STORAGE AREA, DIKED AREAS AND CRUSHER UNIT.
- I. SINCE SITE EVACUATION MAY BE NECESSARY IF AN EXPLOSION, FIRE, ETC., OCCURS ON SITE, AN INDIVIDUAL SHALL BE ASSIGNED TO SOUND A HORN. FOR EXAMPLE, THE EVACUATION SIGNAL MAY BE TWO LONG BLASTS EVERY 30 SECONDS UNTIL ALL PERSONNEL ARE EVACUATED AND ACCOUNTED FOR. THIS PROCEDURE WILL BE REVIEWED AT EACH MORNING'S SAFETY MEETING. PROPER WARNING SIGNALS SOUNDED BY THE HORN IS EXPLAINED IN THE SITE CONTINGENCY PLAN ATTACHED TO THIS SITE SAFETY PLAN.
- J. A FIRST-AID KIT WILL BE ON SCENE AT ALL TIMES DURING OPERATIONAL HOURS. AN OXYGEN INHALATOR RESPIRATOR AND A QUALIFIED OPERATOR WILL BE AVAILABLE. THE LOCATION OF THESE ITEMS ON-SITE WILL BE POSTED.
- K. PERSONS HAVING BEARDS OR FACIAL HAIR MUST NOT WEAR RESPIRATORS.
- L. NO PARKING OF NON-ESSENTIAL VEHICLES INSIDE OF THE FENCE LINE WILL BE PERMITTED SINCE SAFETY LANES MAY BE OBSTRUCTED.
- M. REFUELING OF EQUIPMENT WILL BE DONE ONLY IN PREDESIGNATED AREAS.

MORNING SAFETY MEETING

- A. MORNING SAFETY MEETING WILL BE CONDUCTED EACH DAY FOR ALL SITE PERSONNEL WHO SIGN A DAILY ATTENDANCE SHEET. THE SAFETY PROCEDURES, AND ESCAPE PROCEDURES, AS WELL AS THE DAY'S PLANNED OPERATIONS, SHOULD BE DISCUSSED.

SHAFFER EQUIPMENT COMPANY SITE
MINDEN, WEST VIRGINIA

CONTINGENCY PLAN

I. MINOR SPILL OF METHANOL

Any person detecting a spill of methanol should immediately inform the decon area so an alarm (ONE 3-SECOND BLAST) can be sounded and proper personnel notified.

1. ERCS Response Manager will take corrective actions.
2. Air Monitoring Officer will institute the Air Monitoring Plan.
3. The OSC and Site Safety Officer are to be kept informed.

II. MINOR FIRE

Any person detecting a fire on site should immediately notify the decon area so an alarm (TWO 3-SECOND HORN BLASTS) can be sounded and proper personnel notified.

At least TWO persons should respond with fire extinguishers that will be strategically placed on site. A minor fire should be extinguished with an extinguisher- if not, it will have to be dealt with as a major fire.

Exposures may need to be protected. A water spray may be considered for protecting the methanol storage tanks and other high risk areas.

The OSC will notify the local fire department via portable radio. When the fire department arrives on scene, all firefighting efforts will be directed by their senior official.

III. MAJOR SPILL OF METHANOL

In the event of a major spill of methanol an alarm at the decon area will be sounded (THREE 3-SECOND HORN BLASTS). The site will be cleared of all nonessential personnel using the emergency escape routes. All personnel will meet at a predesignated point.

1. ERCS Response Manager will take corrective actions, i.e.:
 - a. Foam area.
 - b. Control all ignition sources.
 - c. Water spray high hazard areas if warranted.
 - d. All nonessential personnel will be off-site.
2. Air Monitoring Officer will institute the Air Monitoring Plan.
3. The OSC and Site Safety Officer are to be kept informed.

IV. MAJOR FIRE

In the event of a major fire on the site an alarm will be sounded (FOUR 3-SECOND HORN BLASTS). The site will be cleared of all nonessential personnel using the predesignated escape routes. All personnel will meet at a predesignated point.

If possible, all diked areas will be foamed.

The OSC will notify the local fire department via portable radio. When the fire department arrives, all firefighting efforts will be directed by their senior official.

V. ON-SITE EVACUATION

This will be the OSC's decision.

VI. MEDICAL EMERGENCY

Personnel will be decontaminated prior to being transported to hospital if possible.

SITE SAFETY PROTOCOL
SHAFFER ELECTRIC
PAGE 3

CONTROL AT THE SITE

ACCESS TO THE SITE WILL BE RESTRICTED BY A CONTINUOUS SNOW FENCE INSTALLED DURING THE IMMEDIATE REMOVAL PHASE AT THIS SITE AND EXIT FROM THE SITE SHALL BE THROUGH THE GATE IN THE SNOW FENCE EXCEPT IN A LIFE THREATING EMERGENCY.

ALL PERSONS ENTERING THE SITE SHALL SIGN IN AND OUT AT THE OSC COMMAND POST.

DESIGNATION OF WORK AREAS AT THE SITE

THE ENTIRE SITE WILL BE DIVIDED INTO THREE AREAS: (1) EXCLUSION AREA WHICH KNOWN TO BE OR HAVE A POTENTIAL FOR BECOMING CONTAMINATED. (2) THE CONTAMINATION REDUCTION AREA WHERE DECONTAMINATION OF PERSONNEL AND EQUIPMENT EXITING THE EXCLUSION AREA IS PERFORMED; (3) THE SUPPORT AREA WHICH IS NOT CONTAMINATED.

THE EXCLUSION AREA (EA)

AT THE SHAFFER ELECTRIC SITE, THE EXCLUSION AREA SHALL INITIALLY INCLUDE ALL AREAS INSIDE THE SNOW FENCE.

THE CONTAMINATION REDUCTION AREA (CRA)

THE SHAFFER ELECTRIC SITE, THE CONTAMINATION REDUCTION AREA WILL BE LOCATED IMMEDIATELY OUTSIDE THE ACCESS GATE AND WILL BE DELINEATED BY A BANNER GUARDED AREA.

THE SUPPORT AREA (SA)

AT THE SHAFFER ELECTRIC SITE, THE SUPPORT AREA WILL BE THE AREA OUTSIDE THE SNOW FENCE NOT ROPED OFF.

CHANGES IN DESIGNATION OF WORK AREAS

AS WORK PROGRESSES ON-SITE, THE OSC MAY DETERMINE THAT AN AREA PREVIOUSLY DESIGNATED AN EA IS NO LONGER CLASSIFIED IN THAT MANNER. IT IS NOT INTENDED, HOWEVER TO CHANGE THE DESIGNATION OF THE CRA SINCE THIS MAY INVOLVE THE MOVEMENT OF THE DECONTAMINATION FACILITIES AND ADDED EXPENSE.

SITE SAFETY PROTOCOL
SHAFFER ELECTRIC
PAGE 4

SAFETY PROCEDURES AND LEVELS OF PROTECTION
EXCLUSION AREA

1. ALL PERSONNEL SHALL ENTER AND EXIT THE EXCLUSION AREA THROUGH THE CONTAMINATION REDUCTION AREA.
2. EMERGENCY ESCAPE ROUTES FROM THE EXCLUSION AREA WILL BE ESTABLISHED AND REVIEWED AS APPROPRIATE AT EACH MORNING SAFETY MEETING.
3. ALL PERSONNEL IN THE EXCLUSION AREA SHALL USE THE PROTECTIVE EQUIPMENT DESIGNATED FOR THEIR JOB FUNCTION BUT IN NO CASE SHALL LESS THAN LEVEL C BE USED.
4. ALL PERSONNEL SHALL WEAR HARD HATS AND SAFETY SHOES.
5. A PRE-SET ROUTE FOR EQUIPMENT WILL BE ESTABLISHED FROM THE CONTAMINATED SOIL PILE TO THE PROCESS AREA TO REDUCE THE SPREADING OF CONTAMINANTS.
6. PERSONNEL PERFORMING THE FOLLOWING JOB FUNCTIONS IN THE EXCLUSION AREA WILL UTILIZE THE DESIGNATED LEVEL OF PROTECTIVE EQUIPMENT.

PRIME CONTRACTOR

- A. BARREL HANDLING, INCLUDING OPENING, SAMPLING, PUMPING, MOVING, EMPTYING, OR ANY DIRECT OR INDIRECT DISTURBANCE OF A FULL-BARREL WILL BE PERFORMED IN LEVEL B. THIS APPLIES TO ANYONE INVOLVED, INCLUDING EQUIPMENT OPERATORS.
- B. SOIL TRANSFERRING OPERATIONS WILL BE PERFORMED IN NO LESS THAN LEVEL C.
- C. LEVEL B APPEARS TO BE APPLICABLE FOR USE BY PERSONNEL OPERATING, OR IN CLOSE PROXIMITY TO, THE EXTRACTOR.
- D. INITIAL START UP ACTIVITIES OF THE SOLVENT EXTRACTION SYSTEM WILL BE PERFORMED IN LEVEL B. AS IT IS DETERMINED THAT THE UNIT IS PROVED TO BE A CLOSED SYSTEM, THE LEVELS OF PROTECTION MAY BE DOWNGRADED TO LEVEL C AS APPROVED BY THE SITE SAFETY OFFICER.

SITE SAFETY PROTOCOL
PAGE 5

CONTAMINATION REDUCTION AREA

1. PERSONNEL AND EQUIPMENT DECONTAMINATION WILL BE PERFORMED IN LEVEL C AS DESCRIBED IN EPA'S STANDARD OPERATING PROCEDURES AND IN THE ERCS CONTRACT. ANY DEVIATIONS FROM THESE PROTOCOLS MUST BE APPROVED BY THE SITE SAFETY OFFICER.
2. ALL PERSONNEL ENTERING THE CRA WILL UTILIZE A MINIMUM OF LEVEL C PROTECTION.
3. ALL PERSONNEL ENTERING THE CRA MUST DECONTAMINATE.
4. ALL EQUIPMENT ENTERING THE CRA MUST BE DECONTAMINATED PRIOR TO LEAVING THE CRA.

SUPPORT AREA

1. NO CONTAMINATED EQUIPMENT OR PERSONNEL MAY ENTER THE SUPPORT AREA.
2. EXCEPT IN THE CASE OF A RELEASE OF METHANOL LEVEL D WILL BE APPROPRIATE FOR ALL PERSONNEL IN THE SUPPORT AREA.
3. EMERGENCY ESCAPE ROUTES AND PROCEDURES FOR THE SA WILL BE ESTABLISHED AND REVIEWED AT EACH MORNINGS SAFETY MEETING

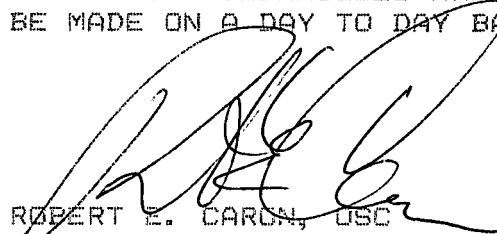
SITE SAFETY PROTOCOL
PAGE 6

DECONTAMINATION PROTOCOL

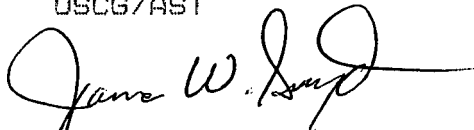
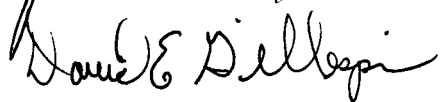
ALL EQUIPMENT AND PERSONNEL ENTERING THE SITE MUST BE THOROUGHLY DECONTAMINATED PRIOR TO LEAVING THE GATE. SINCE THERE ARE VARIOUS PROTOCOL AND EQUIPMENT AVAILABLE FOR THIS PURPOSE, THE OSC WILL DETERMINE IF THE PROPOSED DECONTAMINATION TECHNIQUES ARE APPLICABLE. SUCH DETERMINATIONS WILL BE MADE ON A DAY TO DAY BASIS AS ON SITE OPERATIONS DICTATE.








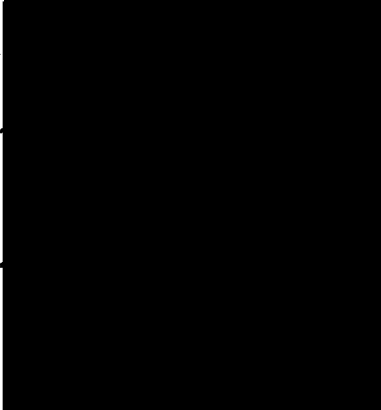
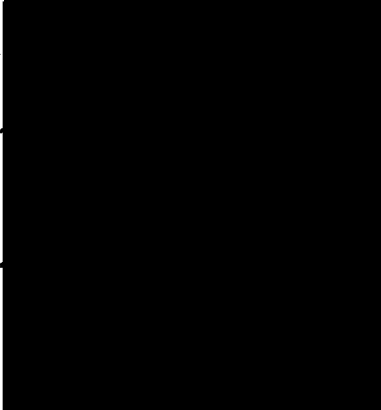
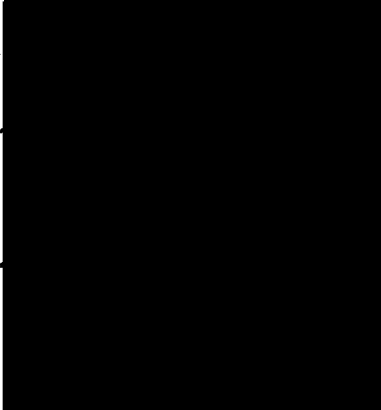
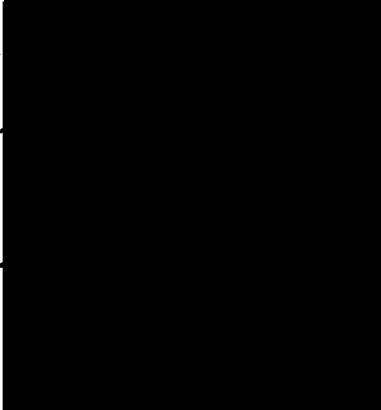
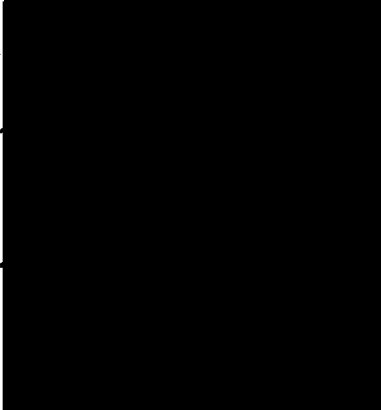
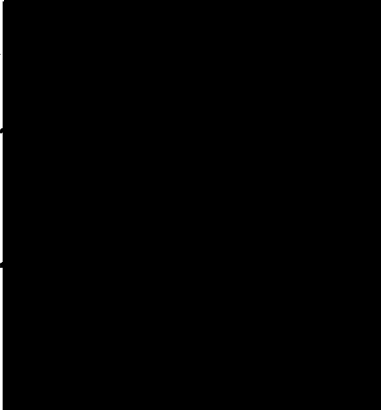
DOUGLAS P. FOX
SITE SAFETY OFFICER
USCG/AST



ROBERT E. CARON, USC
EPA REGION III
PHILADELPHIA, PA.

NAME	DATE	ORGANIZATION
Douglas P. Fox	9/27/85	USCG/AST
Jeffrey C. Jones	9/27/85	USCG/AST
Demetrius Smith	27 SEP 85	USCG/PST
[REDACTED]	9/28/85	Weston TAT
[REDACTED]	Sept 28, 85	Weston TAT
Robert E. [REDACTED]	9/29/85	EPA
[REDACTED]	10/15/85	OHM/WELDER
[REDACTED]	10/15/85	OHM/
[REDACTED]	10/15/85	OHM/
[REDACTED]	10/15/85	OHM Chemist
[REDACTED]	10-15-85	Holman Bail Wks.
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10/15/85	OHM
[REDACTED]	10/15/85	OHM
[REDACTED]	10/15/85	OHM
[REDACTED]	10/15/85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10-15-85	OHM
[REDACTED]	10/16/85	EPA IOFA
[REDACTED]	10/15/85	OHM
John McEwen	10/17/85	USCG/AST
[REDACTED]	10/20/85	OHM CONSULTANT
[REDACTED]	10/20/85	OHM
[REDACTED]	10/21/85	OHM
[REDACTED]	10/24/85	AGA
[REDACTED]	10/24/85	OHM
[REDACTED]	10/25/85	OHM
[REDACTED]	10/25/85	OHM
[REDACTED]	10/25/85	OHM
[REDACTED]	10/25/85	OHM
[REDACTED]	10/25/85	OHM
[REDACTED]	10/25/85	OHM

NAME	DATE	ORGANIZATION
	10-25-85	OHM
	10-25-85	OHM
	10-25-85	OHM
	10-25-85	JAM
Susan Delpino	10-25-85	EPA/Washington
Jacelyn Zuehl	10-25-85	EPA/HQ
Colleen Conuthers	10-25-85	EPA/HQ
Ralph Dollhopf	10-30-85	EPA REGION IV
Tim J. J. J.	10-31-85	EPA PCMB
	11-3-85	OHM
W. J. J.	11-5-85	USCG/AST
F. H. Sizemore	11-6-85	WVAPCC
W. L. Peter	11-6-85	WVAPCC
J. R. Beckert	11-6-85	WVAPCC
Steve Anderson	11-6-85	WVAPCC
David E. Dellospino	11-6-85	(GST) NSF
	11-12-85	OHM
	11-12-85	OHM
	11/12/85	OHM
	11/12/85	OHM
	11/15/85	OHM
	11/15/85	OHM

NAME

DATE

ORGANIZATION

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-15-85

OHM

11-16-85

Weston

11-16-85

Weston

11-16-85

AST/USC6

11/16/85

Weston TAT

11-17-85

OHM

11-17-85

OHM

11-18-85

Weston

11-19-85

OHM

11-19-85

Weston

11-21-85

OHM

SITE SAFETY PROTOCOL
SHAFFER EQUIPMENT CO.
PAGE 7

Emergency procedures

In the event of a medical or other emergency, the OSC or his designee will notify the appropriate authority. the following list of phone numbers will be prominently posted at each telephone on-site:

1. FIRE 465-5100
2. AMBULANCE 465-8700
3. POLICE 574-0255 / 574-1200
4. FEDERAL GOVERNMENT 1-215-597-9898
5. STATE GOVERNMENT 1-348-5937
6. COUNTY/CITY GOVERNMENT 574-1200
7. EPA ENVIROMENTAL RESPONSE TEAM (ERT) 1-215-597 9898
8. HOSPITALS 465-0551
9. AIRPORT 574-1035
10. POISON INFO. 1-800-642 3625

Robert Adkins
Jim Ellis
t Durr
[Signature]

EMERGENCY CODES

I. MINOR SPILL OF METHANOL

- 1 THREE SECOND BLAST
ON ALARM.

II. MINOR FIRE ON-SITE

- 2 THREE SECOND BLASTS
ON ALARM.

III. MAJOR SPILL OF METHANOL

- 3 THREE SECOND BLASTS
ON ALARM.

IV. MAJOR FIRE ON-SITE

- 4 THREE SECOND BLASTS
ON ALARM.

OAK
HILL

PLATEAU
MEMORIAL

H

HIGHLAND

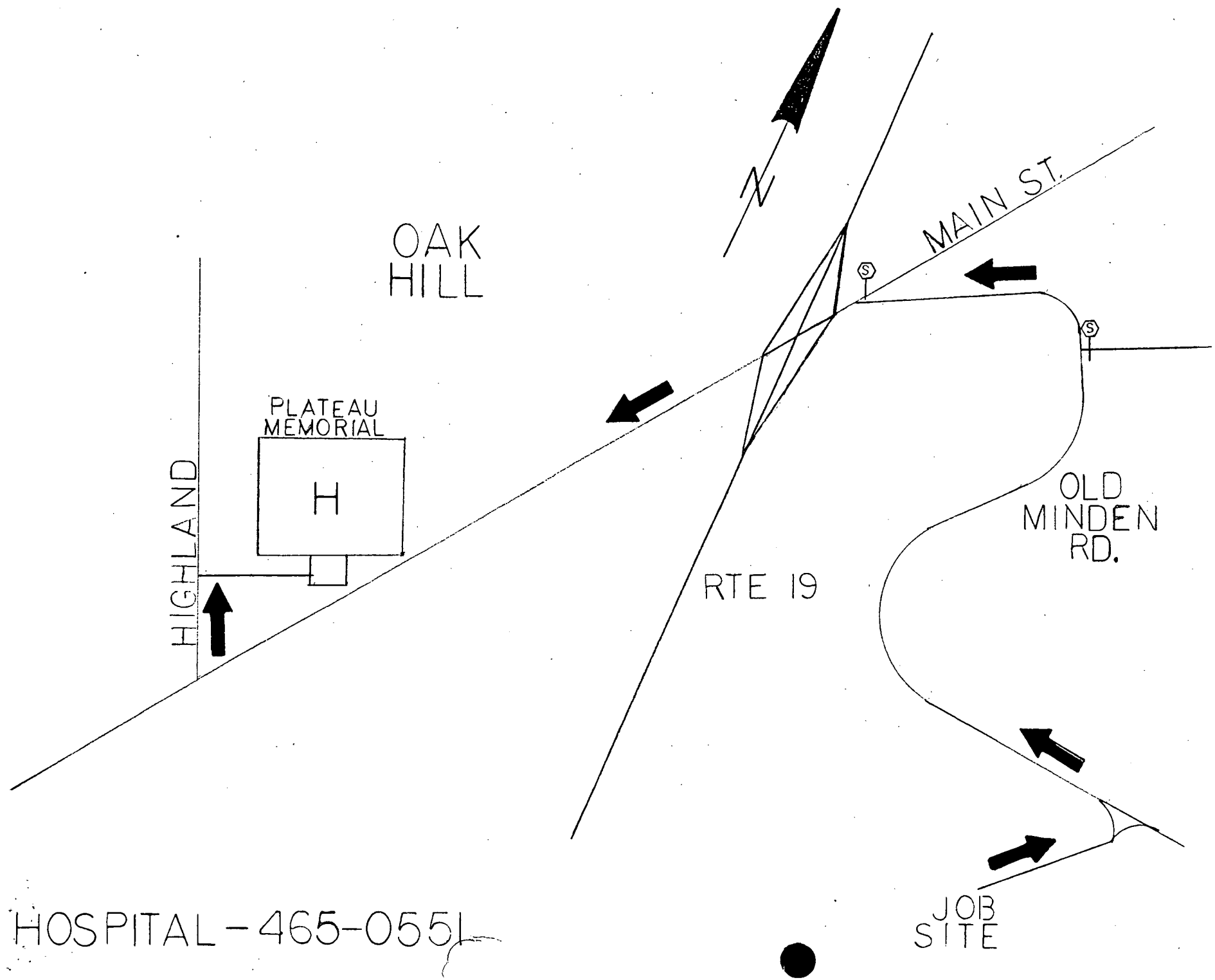
RTE 19

MAIN ST.

OLD
MINDEN
RD.

JOB
SITE

HOSPITAL - 465-0551



Description of PCB Hazards

Acute human exposure to PCBs have been found to cause dermatitis in the form of chloracne (both whiteheads and blackheads) as well as darkening of areas of the skin from hyperpigmentation. These manifestations occur from 2 to 4 months following exposure and gradually disappear. Massive exposures have initiated chronic cases of chloracne at the areas of exposure. Chronic exposure can cause liver dysfunctions of varying degrees along with the noted skin conditions. PCBs can present a health hazard by inhalation and skin contact. PCBs are not extremely volatile and inhalation hazards are not likely unless the material is volatilized by spraying or dust bearing PCB contamination is blown about. The TLV of PCBs from the ACGIH 1984-85 guide is 1 mg/m³ for 54% chlorine with a "skin" notation at both levels, PCB concentrations at this site varied from a high in the 20% by weight-range (260,000ppm) at one "hot spot" to non-detectable. Average PCB concentration in the contaminated dirt pile is in the 500ppm range.

This hazard is very easily protected against by a Tyvek suit for dry material and a Saran suit for wet material and an air purifying respirator with a combination organic vapor - air filtering cartridge (either A0 R563 or A0 R53HE cartridge). Personal hygiene is extremely important and personnel should shower daily using strong soap as well as donning clean clothes daily.

MINDEN WEST VIRGINIA PROCESS SITE AIR MONITORING

GENERAL

The PCB process area and methanol storage area will be monitored for methanol air concentrations for both industrial hygiene and flammability purposes. The standard industrial hygiene instrument will be the HNu photoionization detector with 10.7 or 12.2ev lamp.

The odor threshold of methanol is about 100ppm. The TLV and PEL is 200ppm with an STEL of 250ppm. The lower limit of flammability is 60% by volume (60,000ppm) with the flashpoint of 54 degrees F (closed cup) and 61 degrees (open cup). action levels for methanol are established as follows:

- 0 - 100ppm - no respiratory protection required.
- 50 - 1,000ppm - air purifying respirator with organic vapor cartridge (R53HE or R563 stacked cartridge recommended).
- > 1,000ppm - breathing air required.

* Note that since the odor threshold of methanol is 100ppm, when methanol can be detected by smell, the individual should don a respirator.

INDUSTRIAL HYGIENE MONITORING

Air sampling will be done on an hourly basis with the HNu PID within the process area and methanol storage area at upwind, downwind, and crosswind locations. A sampling grid will be established in the worksite prior to commencing processing. All methanol readings shall be logged in an air monitoring log indicating sample locations, time/date, approximate wind direction, person sampling, and any pertinent actions as indicated from the action levels.

FLAMMABILITY MONITORING

For flammability purposes, readings of 10% LEL (6,000ppm) shall be considered as indicative that a methanol leak has occurred and the situation immediately investigated and a remedy applied. Thus the Action Level for flammability is established at 10% LEL (6,000ppm). At a reading of 50% LEL (30,000ppm) the Oak Hill Fire Department should be notified.

Additionally, hourly readings shall be taken at fixed locations (to be established) within the process area using a Model 260 MSA combination O2/LEL meter. At least eight sampling points should be established at likely locations for leaks or vapor releases. Special attention should be paid to the condensor vapor exhaust and clean dirt pile. All readings should be logged as indicated above for industrial hygiene measurements.

Once each day all process and methanol transfer piping should be checked with the O2/LEL meter, again logging information.

Description of Methanol Hazards

Methanol is an unusual product. The flammable limits are wide, 6.0% to 36% by volume in air, with a closed cup flashpoint of 54°F and an open cup flashpoint of 61°F. Vapor density is 1.11 (air=1) and the liquid specific gravity is 0.79. Methanol will mix with water at all concentrations. Methanol is toxic by all modes of exposure. The TLV is 200ppm with an STEL of 250ppm with a "skin" notation. Chronic methanol exposure affects the optic nerve and often results in blindness. Exposure to concentration of methanol in excess of the TLV is apparently cumulative. Exposure to high concentrations can be immediately fatal - the normal route of exposure to methanol is by ingestion by persons who mistake methanol for ethanol.

Methanol vapors burn with a barely discernable flame which may not be visible in bright daylight. Methanol can form explosive concentrations in the air, and electrical equipment must be suitable for use in NFPA Class I, Division 1, Group D atmospheres, Methanol is classed by the NFPA as a Class 1B flammable liquid.

Extinguishing agents for methanol consist of a fine water spray, dry chemical, and alcohol or universal foam such as National Foam's Universal Foam.

Exposure to high methanol vapor concentrations causes eye irritation, headache, fatigue, and drowsiness. This effect is temporary. Exposure to extremely high vapor concentrations leads to unconsciousness and death. Exposure to liquid methanol on the skin can cause smarting and reddening of the skin. Methanol can be absorbed through intact skin. Anyone receiving a splash of methanol in the eyes or on the skin should flush with water for 15 minutes.

Methanol has an odor threshold of about 100ppm (for most people) with a faintly sweet alcohol smell. The liquid is water white.

If methanol tanks are involved in a fire, the danger of explosion should be considered. Exposed tanks should be cooled with a water spray.

jke